Air Force Smart Operations for the 21st Century

CONOPS

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Executive Summary

Air Force Smart Operations for the 21st Century (AFSO21) is our Air Force's dedicated effort to maximize value and minimize waste in all of our environments – operational, support, and otherwise; to fully integrate continuous improvement into all we do across the Air Force.

Our Air Force is confronted with the expected long war against global terror with its associated evolving mission requirements; continuing and growing unconventional threats and financial draw downs; workforce reduction pressures, aging fleet pressures, and infrastructure pressures. In other words, we are faced with the critical need for action to find and eliminate waste. AFSO21 is our standard concept and approach to immediate and long-term improvement.

This CONOPS articulates what is required throughout the Air Force to continue to assure asymmetric air, space and cyberspace capability by focusing on the processes behind our core, governing and enabling processes in the Air Force. AFSO21 builds on initial successes and work to broaden process improvement efforts in our operational, maintenance, logistics, and support environments – as we analyze and assess our core and non-core mission capabilities.

Fundamentally, AFSO21 is a mindset to select and use the right tools and techniques to identify problems to attack and opportunities for improvement. It emphasizes the use of our greatest resource in doing so – our innovative, dedicated Airmen, guided by world-class leadership and unique core values.

AFSO21 is a transformational initiative for all Airmen that eliminates waste from our end-to-end processes. It is about working smarter to deliver warfighting capabilities today and growing our warfighters into the most effective and efficient thinkers for 2010 and beyond:

- AFSO21 aligns our Air Force to a culture of continuous process improvement with a standardized, disciplined approach to achieve world-class results
- AFSO21 is applicable across organizational, functional, and capability boundaries with the ultimate objective of improving the combat capability we provide
- AFSO21 adapts improvement methods and operating concepts from Lean, Six Sigma, Theory of Constraints, and Business Process Reengineering into a distinct Air Force model

This CONOPS is a living document. Expect these documents to adapt to the Air Force's implementation and institutionalization of continuous process improvement as our primary way of thinking and accomplishing our missions as Airmen.

Section I – Issue

A. Problem Statement

There are many challenges confronting our Air Force (the expected long war against global terror with the associated need for new and evolving mission requirements to deal with unconventional threats and financial, workforce reduction, aging-fleet pressures and infrastructure pressures) to remind us of the critical need for action to find and eliminate waste in all we do. Ongoing transformation efforts within the DoD and Air Force will help meet the challenges, but many are investments that will take years to implement and realize results. Airmen need a standard concept and method to accomplish both long term improvement initiatives while also making immediate improvements – Air Force Smart Operations for the 21st Century (AFSO21).

B. AFSO21 Vision

The vision for AFSO21 is to establish an environment in which we use various tools and techniques that successfully change our day-to-day operating style to fully integrate continuous improvement into all we do across the Air Force. We want this centered around the core missions we as Airmen are responsible for; we want to perform those core missions more effectively to maintain the asymmetric advantages and capabilities the US Air Force delivers in air, space and cyberspace. We want to ensure we are also driving efficiencies and improvements across-the-board, but in particular within areas that are non-core essential mission areas. We will use the right tools and techniques to see and attack problems and opportunities for improvement, and we will use our greatest resource in doing so – innovative, dedicated Airmen.

C. Purpose of the Concept of Operations (CONOPS)

This CONOPS is developed to articulate what is required throughout the Air Force to continue to assure asymmetric air, space and cyberspace capability by focusing on our core, governing and enabling Air Force processes. We will build on successes that are already in work and broaden process improvement efforts across the Air Force. This CONOPS represents the recognition that AFSO21 applied across organizational, functional, and capability boundaries (inside the Air Force and with our strategic partners) will result in processes that are standardized, effective, efficient and responsive in meeting demands today and in the future – ultimately improving combat capability.

D. Relationship to other CONOPS and Initiatives

Air Force CONOPS are Global Mobility, Global Strike, C4ISR, Nuclear Response, Homeland Security, Global Persistent Attack, and Agile Combat Support. This CONOPS is in direct support of all Air Force CONOPS and presents a framework for AFSO21.

AFSO21 must complement other initiatives such as force structure changes, base realignment and closure efforts, fuel efficiency efforts, organizational changes, on-going major transformation initiatives and supporting architecture efforts. The governance structure described in Section V of this document will further explain leadership forums to help ensure the compatibility and results of transformation efforts.

Section II – AFSO21 Overview

A. Synopsis

The primary objectives for AFSO21 are to:

- Provide a standard AF approach to continuously improve all processes that, when combined with our AF capabilities, deliver required effects
- Develop a culture which promotes elimination of waste, sharing of best practices, reduction of cycle times in delivery of effective combat capability across all products and services, and involvement of all Airmen in the relentless pursuit of excellence
- Ensure that all Airmen understand their role, develop their ability to effect change, and continuously learn new ways to save resources and eliminate waste

B. Operational View

The overarching intent of AFSO21 is to more effectively deliver war-winning, expeditionary capabilities (deployed and in-place) to the joint commanders. We will also seek effectiveness in our core responsibilities associated with non-combat operations (e.g., humanitarian relief). By achieving an operating style of continuous improvement in the Air Force – focused on our core mission – the Air Force will better:

- Prepare for and participate in the joint fight, anywhere, anytime
- Develop, maintain and sustain the warfighter edge
- Provide motivated and accountable Air Force warriors
- Continually improve our ability to meet the ever-changing demands of the world, our enemies and inevitable fiscal constraints

C. Desired Effects

Total Air Force involvement. The focus on warfighter effectiveness, efficiency, and the elimination of waste in the processes which the Air Force executes every day will apply to all Air Force mission areas. Many of our processes have evolved over time and have been woven together using existing processes or parts of processes. Additionally, most processes exist across functional boundaries making waste more likely and simultaneously harder to see. Examining the entire process with a focus on the ultimate user, the warfighter, allows us to eliminate large amounts of non-value added activities and time while giving the warfighter exactly what he or she needs to quickly and effectively accomplish the mission.

Sustained and deliberate application over the long term. The Air Force has been heading in the AFSO21 direction for several years and many efforts have continuous process improvement characteristics. One of the more dramatic efforts has been in the area of Time-Sensitive Targeting. The window of opportunity to hit a target with high probability of success can be very small. Our old mission methodology was not capable of using real-time intelligence data to hit a target in a timely manner. By studying the entire process and eliminating the non-value added steps in the process, we have taken the Time-Sensitive Targeting process from days, down to single-digit minutes. This type of improvement will give the Air Force true Global Strike capability it needs, anytime, anywhere. The effects we will deliver from AFSO21 are compressed cycles times; reliable results; culture change that enable Airmen to relentlessly and continuously improve; agile and nimble operations that can adapt quickly to changing demands and Requirements; and continued unparalleled air, space and cyberspace power enabled by premier processes. The focus must be results oriented versus activity oriented (i.e. success is measured in operational and efficiency results vice measures of amount of AFSO21 activity).

AFSO21 will enable Airmen to continually improve their performance in order to the following effects:

- Improved ability to rapidly respond to our joint warfighter and Nation's needs
- Predictability and reliability of delivered and sustained capability
- Standardized, stabilized, and more efficient processes
  - Integrated command and cross-functional processes
  - Shift from functional-specific improvements to those benefiting the end-to-end process
  - Reduced waste
  - Reduced costs
  - Reduced risk
  - Ability to re-deploy resources
  - Continual improvement of products and services
- More capable, effective and motivated Airmen
  - Improved safety and morale
  - Learning environment in all organizations
  - Trust and teamwork across the Air Force
- Results oriented leadership with:
  - Success tied to performance expectations (vice activity levels)
  - Greater combat capability by improving cross functional processes

Section III – Context

A. Time Horizon

This CONOPS is a living document. Future versions may be necessary due to changes in doctrine, strategy, technological advances, the domestic and international security environment, changing policy, roles, missions, AF CONOPS updates, etc.

B. Critical Success Factors

Lessons learned inside and outside the Air Force dictate we pay attention to the following critical success factors to achieve our desired effects:

- Senior Leaders and Commanders lead this effort – both actively and visibly
- Incorporate AFSO21 as part of our Airman culture
- Resource the effort – to include prioritized support for Air Force-wide implementation and training (classroom and hands on experience) for the Total Force
- Establish a common framework and supporting structure for implementation
- Ensure AFSO21 efforts are linked and aligned with Air Force strategic vision and goals
- Establish the right metrics for performance that are aligned and base lined from HQ Air Force to Airmen
- Develop the right people to facilitate process improvement efforts when facilitators are needed
- Deal with organizational and stovepipe boundaries
- Dispel myths and misconceptions about continuous improvement
- Lead change and overcome resistance to change
- Demonstrate success and sustain momentum
- Communicate – we need a common understanding of what AFSO21 is, and how we will be more effective as a result of our effort
- Proceed with a sense of urgency – everyone must understand the compelling need for change and be motivated into action
- Maintain focus on the results and measure them

C. Air Force Advantages

The Air Force must leverage the advantages we have over other large commercial and public organizations. They include the following:

- Well-developed training and education systems
- Well-defined lines of authority
- Dedication of our people – fierce loyalty
- Strong sense of mission
- We understand standards and compliance
- Commonly understood set of core values
- Strong leadership which we value
- Already ingrained desire to innovate and improve

Section IV – Deployment Concept

A. Implementation Strategy

Senior Leaders and Air Force Commanders will plan to implement AFSO21 in a three-phased approach tailored to meet the priorities and opportunities in their areas of responsibility. Implementation phases are illustrated in Figure 1 below. Each phase is described in this section. Implementation will require self-financed programs within Air Force and Major Command Headquarters and Wings. Our ability to fully implement the strategy will require improvements under each Commander's purview as well as along entire end-to-end capability value chains.

Phase 1 Initiation	Phase 2 Full Implementation	Phase 3 Mature & Sustain
• Leadership commitment • Share Vision • Establish governance • Mission priorities/ goals set • Initial training and benchmarking • Quick, visible wins — demonstration area established	• Structure in place to sustain process improvement • All key areas 'touched' • Strategic alignment of goals/metrics • Redeployment of resources is routine • Substantial and growing performance improvements	• Commanders spending more time on strategy & improvements • Self-improving work teams • Cultural changes effected • Improvements extended to strategic partners • Use more advanced Lean CPI tools

Figure 1. AFSO21 Phased Implementation

- **Phase I: Initiation**
  - Senior Leaders and Commanders set the vision, goals and strategy and articulate the case for change within their command
    - Senior Leaders and Commanders articulate the core Air Force mission their organization executes or enables, key performance metrics associated with that mission that are linked and aligned with Air Force goals, priorities for improvement, set the goals, base line metrics and start measuring results
    - Top organizational metrics are aligned with higher headquarters goals and metrics
    - AFSO21 efforts are aligned with key goals and integrated with other Transformation efforts
  - Senior Leaders and Commanders are trained, understand, and committed to AFSO21

- Understanding is best achieved through seeing and participating in successful AFSO21 activities
  - Senior Leaders and Commanders are responsible for governing AFSO21 efforts using established lines of Command authority, the Air Force Corporate Process, and support from process professionals
  - Quick, visible wins are achieved by selecting high payback areas that can demonstrate clear AFSO21 results
  - Value stream mapping (VSM) is accomplished in core areas for the organization and action plans are developed and resourced
    - The VSM helps to understand how work is accomplished; to identify the impediments and barriers to improved efficiencies and effectiveness of the work; to visualize issues and improvement opportunities
    - Developing a VSM and desired state map helps chart a set of project priorities for Senior Leader and Commander implementation plans
  - Results are measured and communicated – internally and externally
  - Redeployment of resources is directed by the Senior Leaders and Commanders as results are achieved
  - Everyone in the Air Force receives AFSO21 training to include those in accession programs

- **Phase II: Full Implementation**
  - Structure is in place to sustain process improvement
    - Sufficient experience to grow and sustain AFSO21 improvement methods and operating style
    - Institutionalized local processes for training and conducting improvement events
  - All key areas and people are involved and understand AFSO21 efforts
    - Includes greater cross-organizational/cross-functional process improvements and the elimination of waste
    - Work teams are able to self-generate improvements that contribute to the warfighter capability and waste elimination
  - Full alignment of goals and metrics, from headquarters level to individual Airmen so all understand their roles and their contributions to the capabilities they enable
  - Redeployment of resources has expanded from the first phase, with some resources redeployed towards emerging mission requirements and critical shortfalls in Major Commands or the Air Force
  - Higher levels of performance and efficiency are evident across the organization
    - The Air Force is achieving substantial performance improvements and is demonstrating a measurable, consistent path of improvement

- **Phase III: Mature and Sustain**
  - Senior Leaders and Commanders are achieving world-class levels of results regarding time and effort dedicated to setting strategy and leading/motivating the organization (versus daily firefighting)

- Self-improving teams affect the day-to-day business
- Cultural changes associated with AFSO21 are visible and pervasive across the organization – AFSO21 is recognized as our way of doing our job every day
- Matured, supporting structure is in place to sustain continuous improvement with sufficient experience and proven results to extend our methods and elimination of waste to Air Force strategic partners (inside and outside of the DoD)
- The use of more advanced tools (e.g., automatic error detection and error elimination, improved predictability and management of problems, and advanced variability analysis and reduction techniques) are applied to AFSO21 efforts

B. Sequenced Actions

Continuous process improvement begins with strategic visions and plans (Air Force and command level). It is essential to align Senior Leaders' and Commanders' AFSO21 activities with strategies to achieve Air Force and commander goals and objectives. AFSO21 activities and improvements disconnected from Senior Leaders' and Commanders' strategic plans create the potential for isolated events achieving sub-optimum results. Our ultimate objective is to create end-to-end process improvements which provide greater combat capability, leverage standardized best practices, and eliminate process waste.

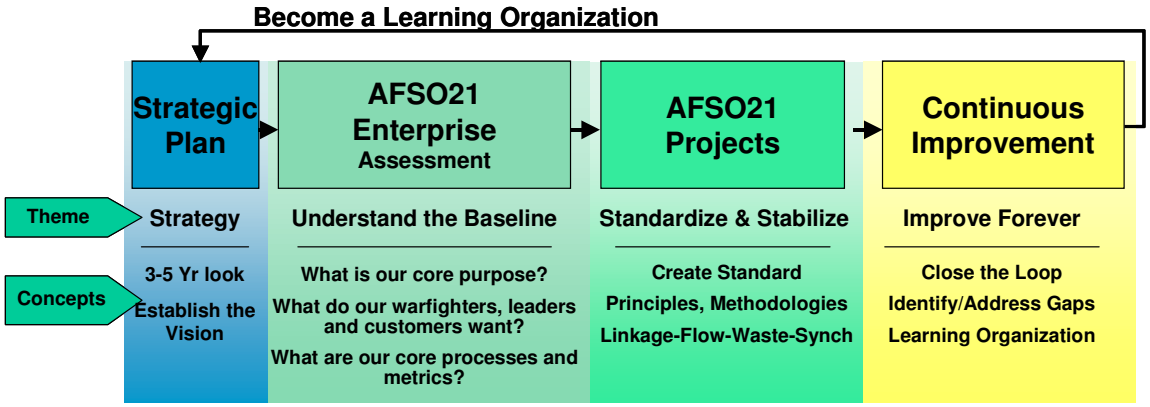

Figure 2. Continuous Process Improvement – Key Transformation Activities

The AFSO21 improvement model links strategy to improvement priorities and activities. Figure 2 outlines this relationship. Based on the vision and strategic plans of the Air Force, we must ensure Senior Leaders and Commanders AFSO21 efforts are aligned with that vision and associated goals. Project priorities, improvements made and results realized will feedback to our cyclic Air Force strategic planning process. Representative activities illustrated above are described below.

- **Strategic Plan.** All Senior Leaders' and Commanders' AFSO21 activities should be aligned and driven by DoD, Air Force, and Major Command strategic

guidance. Understanding strategic objectives is essential to focusing Senior Leaders and Commanders AFSO21 improvement priorities.

- **AFSO21 Enterprise Assessment.** This is an end-to-end look at the entire chain of processes for a given subject thru the lenses of all stakeholders (e.g., leaders, customers, partners, suppliers, workforce, union, and community). The model looks at the Air Force enterprise from different stakeholder perspectives to allow for waste identification and to create a future state vision for the Air Force enterprise. Future state vision and goals are confirmed (or established), core missions understood, key metrics identified, and vivid descriptions of the future state for the organization are articulated. Gap analysis and action planning are accomplished to achieve that future state. The action plan provides the priorities for Senior Leader and Commander AFSO21 efforts. Enterprise analysis is described further in the AFSO21 Playbook.
- **AFSO21 Projects.** Early projects typically involve mapping processes to understand what is (and what is not) of value to the warfighter, establishing future state value stream maps, and establishing an action plan to achieve a future state goal. Appropriate methods and principles of AFSO21 are applied to redesign the system. The future state map is used to select and prioritize AFSO21 events. AFSO21 Projects are described further in the AFSO21 Playbook.
- **Continuous Improvement:** Additional AFSO21 projects are conducted to eliminate waste and to incrementally achieve the desired future state value stream map. Projects apply to a specific Air Force work area, a larger value stream at a base, or larger end-to-end value streams that extend beyond a single installation. There are various events that are conducted to eliminate waste. They include the following:
  - 6S Events. Apply principles of Safety, Straighten, Sort, Scrub, Standardize, and Sustain (6S). 6S is applicable to a physical work area as well as organizing and maintaining information that must be shared and used by others.
  - Rapid Improvement Events (RIEs). One-week activities to find and eliminate waste in a work area. RIEs typically involve changing work to effect better work flow and waste elimination, identifying and resolving root cause problems, establishing clear metrics and performance, and stabilizing and standardizing work in an area. The events should be results-oriented with changes implemented in the work area during the course of the event and gains measured following the event to ensure improvements are being sustained.
  - Process Engineering. Larger and more complex process improvement than RIEs. These events focus on larger processes rather than tasks. The events consider processes affecting the entire enterprise. These events often require longer duration than one-week as compared to RIE, and may use various modeling techniques.

AFSO21 will be used at all levels in the Air Force – Headquarters, Major Command, Wing, Group, and Squadron. Key activities required in the iterative process to achieve results are

listed below. The iterative process is illustrated in Figure 3 below and described further in the AFSO21 Playbook.

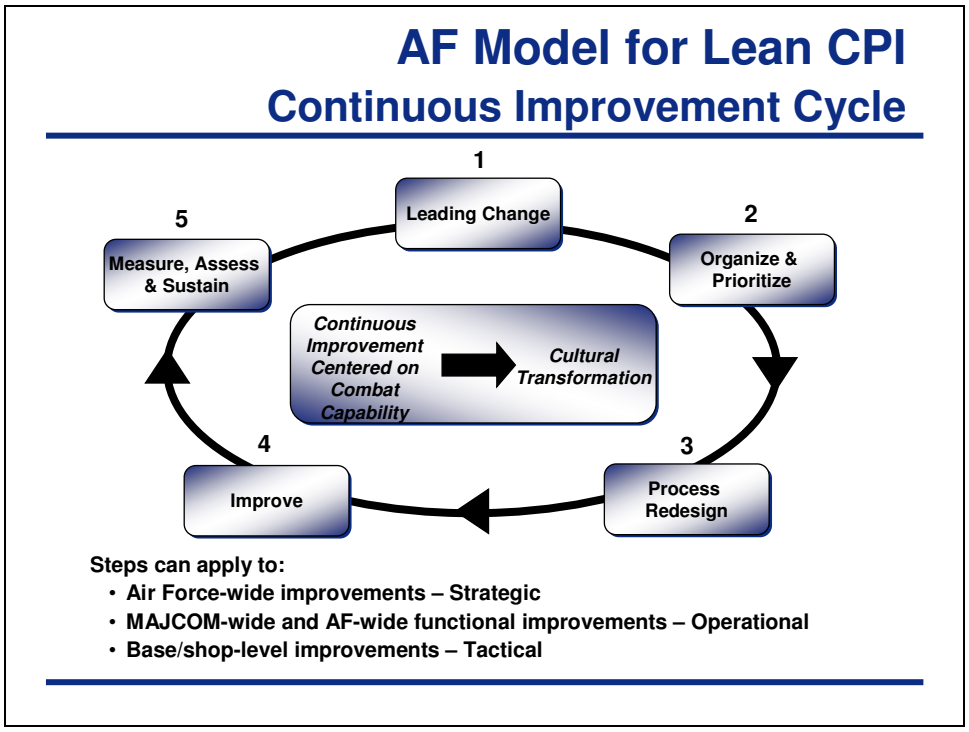

Figure 3. AFSO21 Five-Step Model

D. Objective State

Execution of this CONOPS will result in committed leaders and a workforce engaged in continuously improving their processes. The entire Air Force will continuously learn and improve our effectiveness as we execute our core missions. For this CONOPS, the end state is realizing continuous improvement in how we think and operate.

Section V - Enterprise Processes and Governance

A. Enterprise Processes and Senior Process Owners

A process is a designed group of related tasks that work together to create value. All organizations are made up of core activities and support activities that enable, provide vision, and structure for enabling and core activities. To that end, the Air Force has defined core, enabling, and governing processes.

The core processes of the Air Force define our purpose and mission. Enabling processes are those required to support the core processes. Governing processes are those used to direct and focus our core and enabling processes. The processes we will use at the highest level for AFSO21 implementation and managing improvement efforts are illustrated in Figure 4.

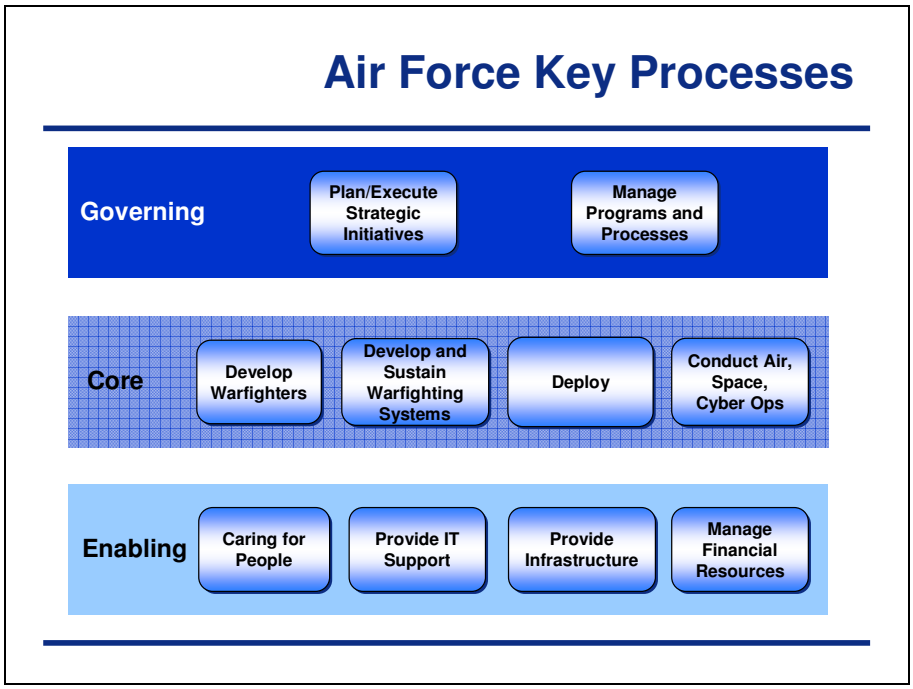

Figure 4. Air Force Enterprise Processes.

Air Force processes may be characterized into three types:

- **Governing.** Processes that direct and focus other processes. Essential processes required to set corporate direction and strategy, allocate resources, and align the Air Force to achieve its long-term goals
- **Core.** Inter-related, cross-functional processes that combine to realize the mission of the Air Force
- **Enabling.** Support processes that provide core processes with needed resources and capabilities

B. Sub-Processes

Air Force processes are composed of component processes, which together accomplish the process results. They are defined during value stream mapping to analyze the process and reveal opportunities for improvement. Carefully distinguish sub-processes from functions, which are not defined by process improvement efforts, span multiple processes, and specialize skills development.

C. AFSO21 Governance

Air Force senior leaders will govern implementation. We will not invent new high level governance bodies; we will primarily use our existing Air Force corporate bodies and governance structure.

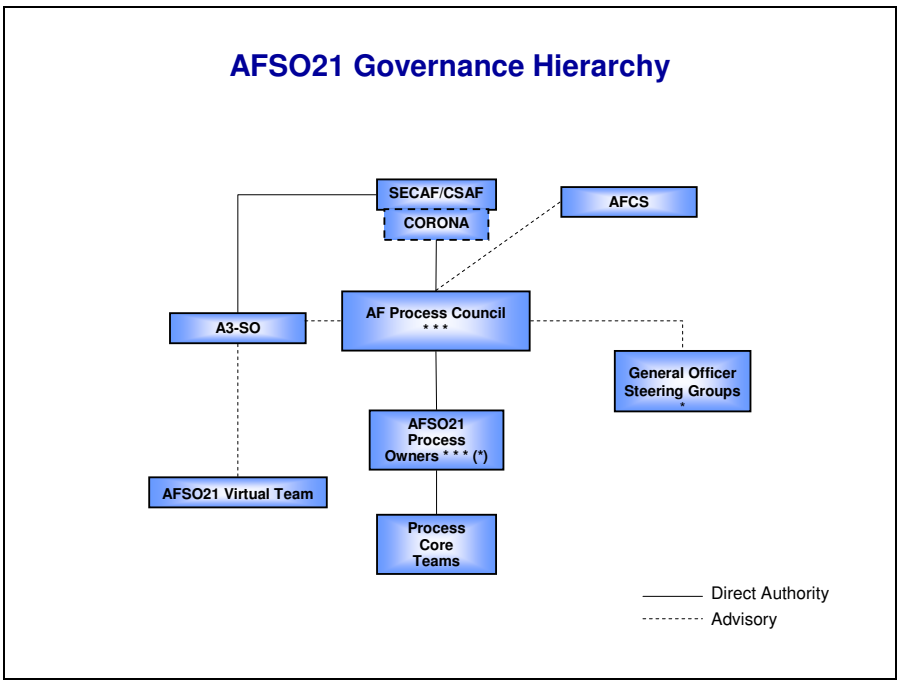

Figure 5. AFSO21 Governance Structure

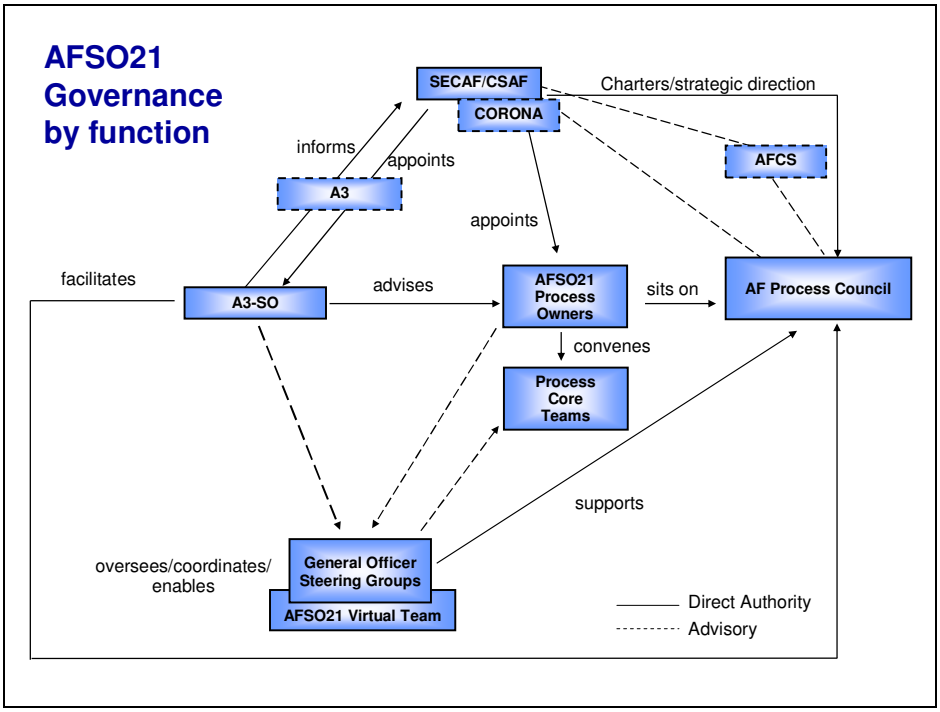

Figure 6. AFSO21 Coordination and Information Flow

D. Air Force Level Teams and Roles

SECAF/CSAF/Corona/AFCS. At the very top, this effort will be directed by SECAF and CSAF using CORONA as our corporate body to oversee and report on AFSO21 results and other transformation activities within the Air Force. The Air Force Corporate Structure will be used to set Air Force plans and priorities and to review resource allocation in biennial programming and budgeting.

AFSO21 Process Council. The Commanders' Integrated Product Team (CIPT) has been our primary body for driving business transformation, but it has also been our forum for architecture management, information technology (IT) portfolio review, and pursuing IT quick wins for operational commanders. The CIPT has been re-chartered into the Process Council to focus on process improvement and engineering efforts. Operational processes will be part of their purview to collaborate and de-conflict Air Force level and MAJCOM improvement activities. This governance body will distinquish where we need a common Air Force process versus where MAJCOMs should have the lead or flexibility to adapt processes. This is critically important to ensure that processes which must be standardized Air Force-wide (whether garrison or expeditionary related) are assigned to a lead Command or lead within HAF or SAF.

The AFSO21 Process Council Chair determines the governing, core, and enabling processes and assigns Air Force Process Owners. By virtue of process ownership, Air Force Process Owners will be members of the AFSO21 Process Council. The AFSO21 Process Council is chaired by the Air Force Vice Chief of Staff (AF/CV).

AFSO21 Process Council Responsibilities.

- Define an Air Force-wide continuous process improvement force development, performance metrics, and effectiveness capture strategy
- Establish priorities for AFSO21 projects and events and subordinate team charters
- Establish a process-based portfolio management capability that identifies waste, facilitates solutions, and recommends adjustments within the AF Corporate Structure
- Establish a process for registering, administering, and assessing process improvements to eliminate duplication
- Assist AF Process Owners to define a common set of standards and procedures for governing the process improvement environment, documenting and communicating process improvements, eliminating duplication
- Recommend savings to be redistributed to assist AF Process Owners to continuously improve AF governing, core and enabling processes
- Resolve issues between competing processes
- Lead realignment of organizational structures, investments, and other resources within their commands to support the governing, core and enabling AF process improvement

- Establish subordinate teams as required to facilitate executing Council responsibilities. Activities may include strategic transformation assessment and planning, investment strategies, issue assessment, and resolution recommendation.

Air Force Process Owner Responsibilities. The AFSO21 Process Owners have lead responsibility for designated Air Force enterprise level core, enabling and governing processes. Process Owners will assemble Process Core Teams to help organize priorities for improvement, assure proper team representation for AFSO21 improvement events, arrange required facilitator or analytic support, and monitor/report event efforts and results to the Process Council. The Process Owner and their Process Core Team will help ensure results are also shared with the AFSO21 Virtual Team members and the AFSO21 Office.

- Lead cross-MAJCOM, cross-functional processes improvement
- Develop process-based architecture
- Appoint the sub-process owners; ensure sub-process owners deliver AF-wide process improvements consistent with the SECAF and CSAF vision and direction
- Leverage the process-based portfolio management capability of the USAF; clearly link improvements to investments with a definitive set of metrics and measurements

AFSO21 Office (SAF/SO21). The AFSO21 Office is responsible to facilitates CPI across the Air Force. This office will be kept to a very small number (approximately 20 personnel). The AFSO21 Office duties include (1) being a hub of collaboration and knowledge for process improvement, (2) developing standards and guides for AFSO21, (3) developing the overarching implementation strategy, (4) collaborating and coordinating AFSO21 initiatives with MAJCOMs, Headquarters Air Force (HAF) and Secretariat of the Air Force (SAF) AFSO21 leads, (5) assisting MAJCOMs with their priority efforts and removing roadblocks to progress, and (6) being Air Force "traffic cop" to resolve disputes and/or assist the Process Council with dispute resolution.

- Responsible for AFSO21 Process Council Support
- Responsible for AF-wide training on process engineering
- Responsible for ensuring AF improvement targets are tracked, measured, and reported to SECAF, CSAF, and AFSO21 Process Council
- Continuously communicates AFSO21 messages, goals, and progress to the Air Force
- Provides guidance, toolsets, and standard methodologies to Air Force for achieving continuous process improvement (such as the AFSO21 Starter Kit)
- Provides Secretariat support for AFSO21 Process Council

The AFSO21 Office will report directly to Air Force top leadership while supporting all Commands and headquarters leaders, as depicted in Figure 6. The role of this office is described below. The structure to support Headquarters AFSO21 efforts is analogous to the typical Wing structure described in this section, with Directors and Division chiefs within the A-staffs leading AFSO21 efforts while designated Process Managers assist.

General Officer Steering Groups (GOSG). General Officer Steering Groups will be organized by the Process Council or AF Process Owners as needed for oversight on specific efforts. GOSGs will normally be organized only for the duration of the specific effort and then disbanded.

The **Senior Working Group** of the Operational Support Modernization Program is a long term GOSG and assists the Process Council in managing projects and developing AF level improvement efforts. Members are typically at the two and one star levels (or civilian equivalent) and work for the Process Council member. It is composed of representatives from these organizations.

AFSO21 Virtual Team. The Virtual Team eliminates the need for a large centralized project office. This team is composed of members from HAF, SAF, and MAJCOM organizations. Members will typically be the prime AFSO21 action officers for their organizations. This group will be the primary forum for information and data flow regarding AFSO21. It will meet regularly via teleconference and will occasionally have face-to-face meetings.

HAF/SAF/MAJCOMS. MAJCOM Commanders are the principal implementers for AFSO21. They must establish their companion governance structure to the Air Force level, using existing command responsibilities and lines of authority. Each MAJCOM as well as HAF and SAF organizations must establish a lead for AFSO21 implementation. These leads (at the general officer, colonel/GS-15, and action officer level) represent the AFSO21 Virtual Team for implementation. They are a crucial collaborative group to coordinate implementation plans, establish project priorities, and share lessons learned and results.

E. Wing Level AFSO21 Governance and Support

Wing Level AFSO21 Structure. Commanders need to have a supporting structure to initiate and institutionalize continuous process improvement to (1) ensure consistency in training and application of improvement efforts, (2) provide the requisite supporting structure to supervisors, process owners, and the workforce, and (3) provide required leadership governance over process improvements. The structure described below is for a typical Air Force Wing – local needs determine precise structure. Much of the effort and many of the roles identified below are within existing Senior Leader, Commander, and supervisor responsibilities. The preponderance of support is part-time. However, a small, full-time group of Process Managers is needed to facilitate aggressive, organized, and results oriented AFSO21 implementation.

An **Executive Council** will be established with the Wing or Deputy Wing Commander as chair and the Group Commanders or their deputies on the Council as members. The purpose of the Council is to provide governance and leadership to AFSO21 efforts within the organization. Responsibilities of the Council include the following:

- Align organizational goals and objectives with Command and Air Force goals, objectives and key performance measures
- Validate enterprise-wide processes and prioritizes efforts
- Align efforts through approval of teams and initiatives
- Make decisions dealing with resource allocations such as manpower, facilities, and funding
- Communicate policy: i.e. reporting, accountability, how to deal with barriers, repercussions, etc.
- Ensure standardized deployment of AFSO21 efforts
- Make decisions on redeployment of personnel, facilities and equipment resulting from efforts
- Ensure resources are available
- Monitor and support implementation teams by providing resources and barrier removal
- Establish incentives to promote and reward continuous improvement

A **Process Manager Board** is recommended to support the Commander's Executive Council. It is comprised of personnel leading AFSO21 at all organizational levels (i.e., the Group Commander's Process Managers). Members on the Board would also be members of the Core Team described below. The Process Manager Board performs the following functions:

- Share lessons learned, identify training needs, and discuss resource needs
- Review briefings and other materials en route to executive council, including proposed initiatives from process owners

A **Core Team** of Process Managers should be established consisting of the Process Managers for Group and Squadron Commanders. Core Team make up and size will be dependent upon the size, scope and activity level of the organization. The Core Team members provide training, facilitation, and support to implementation teams for specific process improvement initiatives. Process Managers and Change Agents make up the Core Team.

Process Managers (PM) are the managers of AFSO21 reporting directly to the Commander at Wing, Group and Squadron level.

- Operates as full time position
- Directs and advises core teams below their level
- Ensures strategic alignment of efforts
- Ensures standard deployment. (i.e. Tools, certification, resources, reporting, etc.)
- Assist Implementation Teams and work areas to eliminate waste, implement AFSO21 practices, and solve long buried problems that come to the surface as we remove resources (people, material, time, space)

Facilitators. Lean and AFSO21 experienced individual (with appropriate credentials) with primary responsibility for conducting training events and facilitating improvement events. Coordinates among the Process Manager, Process Owner, and Team Lead to ensure improvement events are properly scoped, planned, and executed.

Team Lead. Coordinates team activities with event Facilitator before and during AFSO21 improvement events, and has primary responsibility for pre-event preparation, coordination among team participants prior to the project, advising Commanders if there are any barriers to being prepared for the event, assuring adequate support through the event, and managing post-event follow-up activities. Many events can fail from lack of preparation or support from team members. Team leads should keep commanders apprised of upcoming events and the people and resources needed to accomplish the events.

Implementation Team. Managed by the Team Leader and Facilitator; team composed of SMEs and skilled working level employees who have received basic AFSO21 instruction. All team members are equally responsible for and a key part of any successful improvement event. Implementation teams should be kept to a manageable number (8-14) with additional help on call as needed prior to the event, during it, or afterwards. An effective practice during the course of a one-week value stream mapping or other event is to bring others from the work area in to review current state problem analysis findings and future state improvement recommendations.

Process Owner (Below AF Level). Senior manager responsible for the process considered for improvement.

- Forwards initiatives to Process Manager Board for review and Executive Council for approval
- Eliminates barriers
- Ensures progress
- Rewards team members
- Helps sustain changes

Section VI - Metrics

This section to be determined.

Section VII – Incentives

This section to be determined.

Section VIII - Reviews and Reporting

A. SECAF/CSAF

- Receive updates at CORONA
- Participate in bi-annual AFSO21 conferences and status reviews

- Monthly status from SAF/SO21

B. AFSO21 Process Council

- Monthly meetings and progress reviews
  - Sponsor select initiatives as requested by council members
  - Review AF process owner briefings on progress of initiatives
  - Review A3-SO briefings on state of AFSO21 across the enterprise
    - Training status
    - Policy and guidance status
    - Special issues and topics
  - Review member briefings on progress of initiatives as required
  - Implement techniques to promote AF-wide process improvement
- Report process improvement results semi-annually to SECAF/CSAF
- Report process improvement results as necessary to CORONA

C. AF Process Owner

- Review and approve initiative recommendations on regular basis
- Review progress of initiatives through GOSG and program manager (AFSO21 process architect) on minimum of a quarterly basis

D. AFSO21 General Officer Steering Groups (GOSG)

- Meet monthly or more frequently as necessary
- Monitor GOSG mission area process improvement
  - Sponsor select initiatives as presented by GOSG members or assigned teams
  - Prepare and screen process improvement initiatives for AF process owner
  - Implement techniques to promote mission area process improvement
- Report process improvement results as sponsored by the AF process owner to the AFSO21 process council

E. SAF/SO21 Office

- Support AFSO21 virtual team through communities of practice
- Sponsor semi-annual summits which promote best practices from external organizations and learning about continuous process improvement AF-wide
- Support screening of reviews by GOSGs, AF Process Owners and AFSO21 Process Council to ensure actionable, standard content
- Day-to-day management and monitoring of AFSO21 activities

Section IX – Summary

The USAF is the world's most effective, most respected, and most powerful Air Force. However, we face a challenging future. We must continue to improve and adapt. A comprehensive approach to continuously improving our work processes will provide us with the method we need to reduce the stress on our airmen and recapitalize the inventory.

We are seeking three things from this approach. First, we want Airmen who are fully aware of the importance of their work and how it contributes to the mission; Airmen who look to improve what they do every day and see their roles as providing value and eliminating non-value added activity. Second, we want to enhance our ability to accomplish our mission and provide greater agility in response to rapidly changing demands. Finally, we want to make the most of our existing budgets and free resources for future modernization by systematically identifying and eliminating the waste in our day-to-day processes.

This approach fits our Air Force. We can do this – and we need to do this.

Section X – References

OSD Continuous Process Improvement Transformation Guidebook, May 2006
AFSO21 Process Council Charter, June 2006
AFSO21 Playbook (Working Draft) 15 June 2006

Section XI – Glossary

The terminology provided in this attachment has been largely derived from a variety of continuous improvement-related publications and programs. Not all of the terms defined are found in this documen; rather many of the terms are provided as background information. Key terms used in this guidebook that were not readily available in the continuous improvement lexicon but are important to DoD CPI and AFSO21 have been identified and defined.

5S. Traditional Lean manufacturing approach to cleaning up, organizing, and standardizing work: Originally five Japanese words starting with the letter S, translated several combinations of English words, one set: sort (organize), stabilize (eliminate variations), shine (clean), standardize (make standard the best known way to do something), sustain (consciously continue to work the previous four items).

6S. 5S plus safety.

Action Item. A formally assigned requirement to accomplish something within an assigned time frame. Very often action-item tracking numbers are used to assure accountability.

Action Plan. A time-phased schedule for executing Events, Projects and Do-Its that transitions a process from the current state to the desired future state, as determined by members of the Lean Event.

Activity Based Costing. A management accounting system that assigns cost to products based on the amount of resources used (including floor space, raw materials, machine hours, and human effort) in order to design, order, or make a product.

Alignment. The disciplined agreement within an organization between top level strategic plans, goals and objectives with all subordinate levels' plans, goals and actions.

Advanced Planning System (APS). Computer program that seeks to analyze and plan a logistics, manufacturing, or maintenance schedule to optimize resource use to achieve desired results.

AVCOM. Avionics Components Obsolescence Management, a software tool that helps provide forecast and other information on electronic parts obsolescence.

AWP. Awaiting Parts–A special status for an item held up in a repair process while it waits for parts needed to complete the repair. In DoD, this time is generally not considered in determining the time a repair organization spends repairing something.

Backflow. A flow that returns towards its source. In a production or maintenance environment, it is any step in the process that must be corrected or redone.

Balanced Scorecard. A strategic management system used to drive performance and accountability throughout the organization. The scorecard balances traditional performance measures with more forward-looking indicators in four key dimensions: Financial, Integration/Operational Excellence, Employees, Customers.

Baseline Measure. A statistic or numerical value for the current performance level of a process or function. A baseline needs to be taken before improvement activities are begun to accurately reflect the rate of improvement or new level of attainment of the performance being measured.

Benchmark. A qualitative and/or quantitative performance measure of an activity or activities enacted at one or more enterprises that are considered best in class. A benchmark helps a DoD organization set goals in the strategic or tactical phase of an implementation. The comparison is usually made between companies competing for the same market shares, but can also be done based on a single similar function even if the enterprises are from different industries and participate in different markets.

Brainstorming. A method of unlocking creativity and generating ideas that is very effective for teams. In the first step, ideas are offered without the constraints of critical evaluation or judgment. The idea is to "let go". After all ideas have been listened to, no matter how "far-fetched," the ideas are then critically evaluated to select the best ones.

Breakdown Maintenance. A Total Productive Maintenance technique: Time it takes to accomplish a fix after breakdown occurs.

Buffer Stock. Maintaining some small portion of finished products/goods to temporarily satisfy variations in demand.

Business Case. A written document describing why an organization is planning to implement a process improvement initiative, to include a goal and objectives that are specific and measurable based on cost, performance, or schedule.

Business Value. Not identified by the customer, but required to satisfy some other need (e.g., policy, law or regulation, operational security).

Capability Maturity Matrix. A framework for assessing organizational capability in terms of various characteristics (e.g., lean practices). Level 1 normally represents rudimentary capability and level 5 represents world-class industry leader capability.

Capacity Constraint. Anything that hinders production or process flow (the weak link in the chain).

Catchball. A participative approach to decision-making. Used in policy deployment to communicate across management levels when setting annual business objectives. The analogy to tossing a ball back and forth emphasizes the interactive nature of policy deployment.

CDOV. Concept-Design-Optimize-Verify. An acronym for a systems approach to requirements development and effective problem solving. The steps suggest a process from development of an improvement idea to a feedback loop that monitors performance in relation to process goals.

Cell. A logical, efficient, and usually physically self-contained arrangement of personnel and equipment to complete a sequence of work. The cell enables one-piece flow and multiprocess handling. Typically, each cell has a leader who manages the workflow and is responsible for maintaining performance and productivity.

Cell Design. The technique of creating and improving cells to optimize their one-piece flow. A quality cell design results in improved space use, higher value-adding ratios, shorter lead times, lower work in process, and optimal use of employees.

Champion. An individual with primary responsibility for creating the vision and leading the development of the strategic plan. Champions are needed at multiple levels and have a strategic view of his/her organization. Champions guide CPI initiatives through critical understanding of how the organization fits into the enterprise at large.

Change Agent. Natural leader who actively supports the transformation to CPI. The person in an organization that can effect change. This is the person who leads/directs that organization on goals and expectations and holds lower levels of management accountable for accomplishment of those expectations.

Change Manager. The Change Manager is the person designated by the Change Agent to lead the Core Team.

Communication Plan. The strategy a Change Agent uses to convey his or her CPI beliefs and commitment to every level of the organization. This is spelled out in each organization's "CPI Implementation Plan."

CONOPS. Concept of operations–description of how an organization will implement a certain program or effort.

Continuous Flow. The mechanism to transform a product, service or information by which the request for the item is triggered by a customer demand, and the production process creates the needed item without delay or inventory in just the right quantity and delivered at the right time to satisfy the triggered demand.

Core Team. The full-time personnel within an organization dedicated to CPI operations on a day-today basis. The Core Team is lead by the organization's Change Manager. The Core Team will typically be comprised of one-to-three percent of the organization's population.

Corrective Action. The action an identified group takes to reverse a downward trend in process metrics.

Corrective Maintenance. A Total Productive Maintenance technique: Improving or modifying equipment to prevent breakdowns or to make maintenance activities easier.

CPI. Continuous Process Improvement–a comprehensive philosophy of operations that is built around the concept that there are always ways in which a process can be improved to better meet the needs of the customer and that an organization should constantly strive to make those improvements.

CPI Deployment Cycle. For DoD CPI, a multi-step cycle that shows how DoD views CPI progression and management. The cycle begins with strategic planning and culminates in CPI project implementation. It is an iterative cycle that builds upon achieved results.

CPI Maturity. The degree of process improvement across a defined set of process areas where management goals have been set and metrics for measuring attainment of the goals are in place. The reliability of repeatability of CPI application.

Culture Change. A major shift in attitudes, norms, sentiments, beliefs, values, operating procedures, and behavior of a group or organization.

Current State. Part of the Value Stream Analysis, this depicts the current or "as is" process - how it actually works in terms of operations, materiel, and information flow.

Customer. Someone for whom a product is made or a service is performed. There are internal and external customers. The external customer is the end user of an organization's product or service. Internal customers are those who take the results of some internal process

step (i.e., a report, an electronic file, or a component) as an input for their work. When applied to a supply chain, entire companies become customers of one another.

Customer Relationship Management (CRM). A philosophy that puts the customer at the design point, it is being customer-centric. It should be viewed as a strategy rather than a process. It is designed to understand and anticipate the needs of current and potential customers.

Cycle Time. The time duration of a process, e.g., from request of a part to fulfillment of the order. The beginning and end of a specific cycle time are defined as part of a CPI project and used to set the baseline for related value stream analysis and improvement goals.

DMAIC. Acronym for Define-Measure-Analyze-Improve-Control. DMAIC is an ordered problemsolving methodology applied widely in private and public sector organizations. The DMAIC phases direct a process improvement team logically from problem definition to implementing solutions that are linked to root causes, towards establishing best practices to help ensure the solutions stay in place.

DMALC. A derivative of DMAIC. Acronym stands for Define-Measure-Analyze-Lean-Control. DMALC is an application of the DMAIC problem solving methodology in the Lean environment.

DMSMS. Diminished manufacturing sources and material shortages–an inclusive term for the general problem of parts becoming unavailable by becoming obsolete or through suppliers going out of business or leaving a particular market.

DoD. U.S. Department of Defense

DoD CPI. A strategic approach for improving reliability (of outputs and products), cycle time (shorter process times), cost (less resource consumption), quality, and productivity through the use of contemporary continuous improvement tools and methodologies.

Do-It. A desired change to the current state that can be done quickly and easily—usually within days.

Driver. An action that forces an expected reaction.

Enterprise Resource Planning (ERP). A type of software package that attempts to consolidate all the information flowing through the enterprise from finance to human resources. ERP is being employed in DoD to standardize data, streamline the analysis process, and manage long-term planning with greater ease.

Enterprise Value Stream Mapping and Analysis (EVSMA) or Enterprise Analysis and Action Planning (EA&AP). A powerful tool for analyzing material and information flow throughout and between organizations in order to identify and plan improvements. EVSMA and EA&AP use simple diagrams to depict a current process and provide clarity to support

improvements in lead time and inventory reductions. Organizations use these tools to identify and plan kaizen/related events for improved effectiveness. Use also encourages participants from all parts of the organization to gain an understanding of the current material and information flow.

Event. A short-term, high intensity effort to address a specific problem. The focus is typically a week, though the preparation normally begins several weeks in front and follow-up continues after. Also called by other names, including Rapid Improvement Event, Rapid Improvement Workshop, Kaizen Event, Kaizen Blitz, Accelerated Improvement Workshop.

Event Summary. The summary provided to management of what was accomplished during an Event. This includes the resulting Action Plan and seeks approval from management to proceed with the action plan as briefed.

Facilitator. Consultant, advisor, or subject matter expert that leads or drives the pace and direction of a group participation event.

Firefighting. Using emergency fixes for problems without eliminating the root cause; managing by crisis instead of proactive planning.

Five Whys. Taiichi Ohno's and Shigeo Shingo's practice of asking "why" five times whenever a problem was encountered. Repeated questioning helps identify the root cause of a problem so that effective countermeasures can be developed and implemented.

Flow. The sequential, coordinated movement of information, product, or service through a process.

Flow Thinking. Production or other work areas are grouped according to various classifications (product, material used, service provided, etc.) and located close to each other to allow unimpeded coordination.

Flow Time. The amount of time it actually takes a product, information or service to move through a process, including wait time.

Footprint Space. The amount of physical space it takes to execute a step in a process.

Future State. A vision of the optimum operating environment with new/improved processes in place.

Gap Analysis. An analysis that compares current performance to desired performance so that solutions can be found to reduce the difference (close the gap).

HQ. Headquarters

Ideal State. A vision of the future state that depicts what the system should look like if there were no constraints. Based on the "King or Queen for a Day" mentality.

Just-in-time. A strategy for inventory management in which raw materials and components are delivered from the vendor or supplier immediately before they are needed in the transformation process.

Kaikaku. A rapid and radical change process, sometimes used as a precursor to kaizen activities.

Kaizen. A Japanese term that means continuous improvement, taken from words 'Kai' meaning continuous and 'Zen' which means improvement.

Kanban. A term that means "signal". It is one of the primary tools of a Just-in-Time system. The kanban signals a cycle of replenishment for production and materials in order to maintain an orderly and efficient flow of materials. It is usually a printed card that contains specific information such as part name, description, quantity, etc.

Lead Time. Interval of time between the established need for something and its successful delivery.

Lean. A systematic approach to identify waste, focus activities on eliminating it, and maximize (or make available) resources to satisfy other requirements.

Lean Enterprise. A business organization that delivers value to its stakeholders, with little or no superfluous consumption of resources (materials, human, capital, time, physical plant, equipment, information or energy).

Level Scheduling. Planning an output so that the fabrication of different items is evenly distributed over time.

Leverage Point. The point at which attention and/or application of resources would result in tangible improvements/benefits to the entire end-to-end value stream.

Maintenance Prevention. A Total Productive Maintenance technique: Designing and installing equipment that needs little or no maintenance.

MAJCOM. .Major Command–the highest level distinct commands within the Services, normally led by four-star flag officers.

Management Review. A report to management on progress made during an Event. A heading check to ensure that management agrees with the approach taken by the Team, normally done in the middle of an Event.

Manual Cycle Time. The amount of hands-on time it takes to move a product or information through a process.

MC rate. Mission capable rate–a calculated rate that describes the portion of aircraft or vehicles that make up a weapon system that are, at least nominally, in a mission-ready condition. It excludes from consideration any aircraft or vehicles that have been shipped to a depot for repair. When the MC rate falls below some Service-defined target, then expediting becomes necessary to get that weapon system back up to full speed.

Mission. The Mission is a concise, unambiguous, and measurable description of the organization's role in the overall objectives of the Department of Defense with a clear and explicit connection to the Strategic Planning Guidance (SPG)/Contingency Planning Guidance (CPG). The declaration should also have specific reference to the effective achievement of that mission.

Monument. Part of a process that cannot easily be altered whether because of physical constraints or legal or regulatory requirements.

Muda. A Japanese term for waste. Lean thinking references use this term as a synonym for waste.

NCO. Non-commissioned officer

Non-Value-Added. Any activity that takes time, materiel or space, but does not add value to the product or service from the customer's perspective. For example, inspections or reviews normally are non-value-added because they are checking to see whether the work was done right in the first place. A non-value added process step violates at least one of the following criteria: The customer is willing to pay for this activity; it must be done right the first time; the action must somehow change the product or service in some manner.

OSD. Office of the Secretary of Defense

One Piece Flow. The concept of moving one work piece at a time between operations within a work cell. Sometimes referred to as a lot size of one.

Operational Plan. The second of two key plans that guides DoD CPI. Usually done at the organization level, the operational plan identifies the actions that support achieving stated organizational transformation. The operational plan recognizes and builds on current good practices and integrates them, providing consistent CPI deployment within the organization.

Outcome. The resulting effect of outputs as they relate to an organization's mission and objectives. They are the critical performance measures to capture.

Pareto Principle. In 1906, Italian economist Vilfredo Pareto observed that twenty percent of the people owned eighty percent of the wealth. In the late 1940s, Dr. Joseph M. Juran inaccurately attributed the 80/20 Rule to Pareto, calling it Pareto's Principle. In general, the concept is that for any given distribution of results, the majority of the distribution (80%) is determined by a small part of the (20%) potential contributors or causes. For example: one

would expect that in a typical manufacturing operation, 80% or more of manufacturing costs will be driven by 20% or less of the cost drivers.

Peer Groups. In DoD, a group that shares common functional responsibilities and carries out similar activities. Peer groups provide an opportunity for cross feeding information about CPI goals, challenges, approaches, activities, and accomplishments. Examples of potential peer groups include turbine engines, fighter aircraft, and communications-electronics.

Performance measure. A measurable characteristic of a product, service, process, or operation the organization uses to track and improve performance. The measure or indicator should be selected to best represent the factors that lead to improved customer, operational, and financial performance.

PDCA. Plan-Do-Check-Act. A process based on the scientific method for addressing problems and opportunities.

PM. Program Manager–in the DoD, the PM is in charge logistics support for one or more specific weapon systems. Program managers, in collaboration with other key stakeholders establish logistics support program goals for cost, customer support, and performance parameters over the program life cycle.

POA&M. Acronym for Plan of Action and Milestones. A common management and reporting tool for CPI projects.

POC. Point of contact–key person representing a given organization.

Point of Use (POU). The condition in which all supplies are within arms reach and positioned in the sequence, in which they are used to prevent hunting, reaching, lifting, straining, turning or twisting.

Policy Deployment. The process of cascading or communicating a policy from top to middle management, and throughout the rest of the organization using a give-and-take process called “catchball”.

PR. Purchase Request–how an Item Manager initiates a purchasing process.

Preventive Maintenance. A Total Productive Maintenance technique: Actions taken performing a specific task to prevent breakdowns from occurring.

Process Cycle Efficiency (PCE). A lean metric derived by assessing total value added time (to customer) against total lead time (duration of process from beginning to end.

Product Families. Items of like kind or units linked to specific material or a common end product; all equipment, workers, and support personnel arranged in a logical sequence to support a common product or product line.

Product Life Cycle Management (PLCM). A technology for managing the entire life cycle of a product from initial development through end of life management (EOL). PLM focuses on collaboration across the enterprise as well with external customers and suppliers.

Production leveling. Configuring the workload and output of a workstation so that the workstation produces items at a rate close to takt time and in an even distributed mix over a time period with minimal slack or nonproductive time through balancing and rebalancing.

Pull. A system by which nothing is produced by the upstream supplier until the downstream customer signals a need.

Pull scheduling. The flow of resources in a production process by replacing only what has been consumed.

Pure Value. Task demanded by the customer to satisfy a requirement to add form, fit or function.

Push. A system by which suppliers produce arbitrary amounts of an item and advance it to the next stage without regard for overall demand.

Quad Chart. The Quad Chart is used to display the status of implementing a process, especially the Enterprise Processes. These charts quickly show the steps required to develop the new process; the schedule and success in deploying the new process; the internal benefits, measured in terms of personnel, dollars or space saved; and the impact on the War fighter, based on improved availability, affordability, performance, deployability, or survivability.

Rapid Improvement.Event. A short-term, high intensity effort to address a specific problem. The focus is typically a week, though the preparation normally begins several weeks in front and follow-up continues after. Also called by other names, including Rapid Improvement Workshop, Kaizen Event, Kaizen Blitz, Accelerated Improvement Workshop.

Red-Tag Campaign. Part of a 6S Event, the red-tag campaign places red tags on furniture or items that are not used, need repair, or should be turned in to Defense Reutilization and Marketing Office (DRMO). Red tags remain on the items until the appropriate action is taken.

Reliability. Refers to the degree of certainty that a product or service will perform as intended over a set period of time.

Return on Investment (ROI). The ratio between the predicted or computed savings or cost avoidance (the return) that will result from some action and the cost of completing the action (the investment). Should take the time value of money into account.

RFT. Ready for tasking–measure of the number of an operational military unit's equipment is ready and capable of supporting the unit's current tasks. Expressed as a percentage only of the current requirement, not as a percentage of total. For example, if unit has 10 aircraft

and 8 are needed on a given day but only 6 are capable of performing the task, then the ready-for-tasking rate is 75%.

Senior Change Agent. Champion or head change agent who supports the transformation to CPI

Senior Leader. The person at the top of an organization's chain of command.

Setup Time. Also called changeover time. The time it takes to change a system or subsystem from making one product to making the next. Typically divided into external setup time, which covers preparations that can be done while the previous operation is still in process, and internal setup time, which cover preparations that are done while the process is idle.

Shingo Prize. A prize established in 1988 in honor of Shigeo Shingo, as an annual award presented to organizations that achieve superior customer satisfaction and business results related to Lean "excellence".

Single Minute Exchange of Die (SMED). A detailed approach to reducing any machine setup time to less than 10 minutes.

Single Piece Flow. The movement of a product or information, upon completion, one at a time through operations without interruptions, backflow or scrap.

Six Sigma (6σ). A strategy that espouses increasing profits by eliminating variability, defects and waste that undermine customer loyalty. Six Sigma can be understood/perceived at three levels: Metric—3.4 defects per million opportunities; Methodology—a structured problem solving roadmap. Philosophy—reduce variation in your business and take customer-focused, data driven decisions.

SMART. Acronym for Specific-Measurable-Attainable-Results Focused-Timely. It is used in relation to objective setting in CPI initiatives. A sound objective will meet each of the letters of the acronym.

SME. Subject matter expert–A recognized expert in a given area of knowledge (subject)

Spider Diagram or Assessment. An assessment tool used to gauge CPI commitment and maturity within an organization. Also called a Radar Chart. A common variant has the spokes of the diagram measure (Levels zero through four) commitment and maturity by assessing the following: Leader's Commitment, the Organization, Value Stream Analysis, Rapid Improvement, Process Control, Strategy Alignment & Deployment/Policy Deployment, 3P Breakthroughs, On-Demand, Defect-Free, Achieving Lot Size of One, Lowest Cost, and Visual Management.

SPO. System Program Office–Home of the Air Force Program Director, the person in charge of managing a weapon system, including acquisition.

Stakeholder. Person internal or external to an organization who has a stake in the outcomes of a process.

Standard Work. An agreed upon set of work procedures that: effectively combine people, materiel, and machines to maintain quality, efficiency, safety, and predictability. Work is described precisely in terms of cycle time, work in process, sequence, takt time, layout, and the inventory needed to conduct the activity.

Strategic Buffer. A predetermined quantity kept on hand to combat variability and lead time impacts.

Strategic Plan. The process an organization uses to achieve and document long-term goals and objectives. For DoD CPI, one of two key plans that guides CPI activity.

Steering Committee. The steering committee comprises senior-level stakeholders who carry out CPI-related planning, identify key metrics, establish CPI infrastructure, monitor performance, and facilitate process improvement when necessary.

Support Team. The support team comprises dedicated and ad hoc resources that facilitate and implement CPI planning. The support team may be organizational based or may have experts brought in as needed from other activities (e.g., HQ) or the commercial sector.

Supply Chain Management (SCM). Proactively directing the movement of goods from raw materials to the finished product delivered to customers. SCM aims to reduce operating costs, lead times, and inventory and increase the speed of delivery, product availability, and customer satisfaction.

Surge. Rapid increase in demand.

Takt Time. Takt is German for beat (as in the beat of music). In CPI thinking, takt time is the available production time divided by the rate of customer demand. Takt time sets the pace of production to match the rate of customer demand and becomes the heartbeat of the system.

TDY. Temporary Duty/On duty (military or civilian) at other than home station.

Theory of Constraints (TOC). A philosophy and a methodology for addressing logical thinking, scheduling and controlling resources, and measuring performance. The philosophy emphasizes that a systems constraint exists in any process and controls the output from the entire process.

Total Lead Time. Duration of a process from beginning to end.

Total Productive Maintenance. A set of techniques to ensure every machine in a process is always able to perform its required tasks. Focused on avoiding and eliminating breakdowns

or maintenance delays, and increasing capacity. Includes: Preventative Maintenance, Corrective Maintenance, Maintenance Prevention and Breakdown Maintenance.

Total Quality Management (TQM). A concept which requires management and resource commitment to adopt a perpetual improvement philosophy, through succinct management of all processes, practices and systems throughout the organization to fulfill or exceed the customer expectations.

Total Value-Added Time. The total time in a process during which the value of the product going through the process to the customer is increased.

Value. A need the customer is willing to pay for, expressed in terms of a specific required product or service.

Value-Added. The parts of the process that add worth to the customer's product or service. To be considered value added, the action must meet *all three* of the following criteria: The customer is willing to pay for this activity; it must be done right the first time; the action must somehow change the product or service in some manner.

Value Categories. Pure Value, Business Value, Non-value added.

Value Stream. The specific activities required to design, order, and provide a specific product or piece of information, from concept to launch, order to delivery into the hands of the customer. In DoD, a term used to encompass all the planning, execution, products, and services that go into an organization-wide process to create value for the customer.

Value Stream Map. Identification of all the specific activities occurring along a value stream for a product or product family.

Variability. An aspect of an item or process that is likely to be unstable or has an inherent/inborn chance of unpredictability.

Vision. The Vision is a clear depiction of the future that describes clearly yet succinctly how the organization will conduct business on a day-to-day basis.

Visual Management. Tools which allows management to quickly visually determine whether a process is proceeding as expected or is in trouble.

Warfighter. For DoD CPI, the ultimate customer. The warfighter is the ultimate focus of CPI activity and should drive the key metrics that serve as the focal for alignment of subordinate metrics and for the synchronization of CPI activity.

Waste. Anything that adds cost or time without adding value. Generally, waste includes: injuries, defects, inventory, overproduction, waiting time, motion, transportation, and processing waste. Waste is often placed into the following categories: Overproduction - to produce an item before it is actually required; Waiting - whenever goods are not moving or

being processed, the waste of waiting occurs; Transporting - moving product between processes is a cost that adds no value to the product; Inappropriate Processing - Often termed as “using a bazooka to swat flies,” many organizations use expensive high precision equipment where simpler tools would be sufficient; Unnecessary Inventory - stockpiles of both in-process and finished goods inventories are a direct result of overproduction and waiting; Unnecessary/Excess Motion - this waste is related to ergonomics and is seen in all instances of bending, stretching, walking, lifting, and reaching; Defects - having a direct impact to the bottom line, quality defects resulting in rework or scrap are a tremendous cost to organizations; Underutilization of Employees - failure of organizations to capitalize on employees’ creativity.

Work in Process (WIP). At any given time, items currently somewhere between the start of a process and the end of the process. In a CPI system, standardized work-in-process is the minimum number of parts (including units in machines) needed to keep a cell or process flowing smoothly.

Work Group. The work group is the key implementation activity for CPI projects that improve operations. Work groups are comprised of members who have functional expertise in operations in the value stream being assessed and improved. Work group members also have expertise in CPI tools or the team is augmented with such capabilities.